

Poster Session II

initiating pretransplantation SMAs and SMAs for our allogeneic recipients.

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REDUCING COSTS WITHOUT COMPROMISING QUALITY IN THE PEDIATRIC ALLOGENEIC TRANSPLANTATION SETTING

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Blood and marrow transplantation (BMT) is a costly procedure. In 1998, we began to institute practices aimed at reducing costs without compromising quality and outcomes. These changes in our practice were introduced sequentially over a 4-year period. Several cost reducing strategies were used, including eliminating weekly chest radiographs, limiting laboratory tests, replacing total parenteral nutrition with enteral tube feedings (in 2001), addition of glutamine (in 1999), and replacing intravenous tacrolimus with oral tacrolimus for graft-versus-host disease (GVHD) prevention. The outcomes of 78 consecutive allogeneic BMTs performed between 1995 and 2004 were analyzed. Parameters for analysis included GVHD, day 100 survival, overall survival, engraftment, relapse-free survival, days in the pediatric intensive care unit, bacteremia, veno-occlusive disease of the liver, and transplantation-related mortality. There was no significant difference in any outcome parameter when each of the practice changes was analyzed separately or even when taken together. This suggests that institutional supportive care practices should be periodically reviewed for their value, effect on patient care, burden to nursing staff, and discomfort to the patient. Future studies analyzing time and cost savings by point-of-care practitioners should focus on those intensive practices that are not based on sound medical evidence.

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GANCICLOVIR AND HIGH-DOSE VALACYCLOVIR REDUCE CYTOMEGALOVIRUS REACTIVATION IN PATIENTS RECEIVING ALLOGENEIC STEM CELL TRANSPLANTATION WITH CAMPATH-1H-BASED CONDITIONING REGIMENS

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Campath-1H (alemtuzumab)-based conditioning regimens are associated with rates of CMV reactivation as high as 50%-85% in seropositive donor/recipient pairs. A high incidence of adenovirus infection has been reported as well. It is known that prophylactic use of high-dose acyclovir reduces the incidence of CMV viremia. Recently, a randomized evaluation of high-dose oral valacyclovir in patients receiving myeloablative stem cell transplantation revealed a further reduction in the incidence of CMV viremia. We evaluated 95 patients receiving an allogeneic SCT and conditioned with fludarabine 30 mg/m²/day (on days -7 to -3), alemtuzumab 20 mg/day (on days -7 to -3), and melphalan 140 mg/m²/day (on day -2). CMV reactivation was defined as >1 positive polymerase chain reaction (PCR) for CMV, positive antigen test, or culture. The initial 11 patients received prophylaxis with high-dose acyclovir 500 mg/m² every 8 hours from day -7 until engraftment, followed by 800 mg 4 times daily until day +180.

Seven of the initial 11 patients developed CMV reactivation. There was also 1 questionable case of CMV disease in a patient who died of respiratory failure. Autopsy revealed alveolar cells positive for CMV and urine positive for adenovirus. The subsequent 84 patients received prophylaxis with ganciclovir 5 mg/kg twice daily from day -7 to day -2, acyclovir 500 mg/m² every 8

hours from day -2 until engraftment, followed by valacyclovir 2 g 4 times daily until day +210.

The cumulative incidence of CMV reactivation in the 84 patients receiving prophylaxis with ganciclovir and valacyclovir was only 17% ± 9% (14 of 84 total patients) by day +100 and 20% ± 10% by day +250. There were no cases of CMV disease. Interestingly, there was only 1 case of adenovirus infection, in a patient who refused valacyclovir.

In summary, CMV prophylaxis with ganciclovir followed by valacyclovir is effective in decreasing the incidence of CMV reactivation after Campath-1H-based conditioning regimens, and may also decrease the incidence of adenovirus disease.

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RESPIRATORY SYNCYTIAL VIRUS INFECTIONS IN ALLOGENEIC HSCT PATIENTS: EFFECTIVE ANTIVIRAL THERAPY ELIMINATES ACUTE MORTALITY, BUT INFECTION-RELATED LUNG INJURY MAY PREDISPOSE TO SUBSEQUENT PULMONARY COMPLICATIONS

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Community-acquired respiratory viral infections in allogeneic HSCT patients are frequently life-threatening. Much of the mortality is due to acute viral infection, for which there is often inadequate therapy to prevent upper respiratory infection (URI) from progressing to pneumonia or to treat established viral pneumonia.

We retrospectively analyzed 128 allogeneic HSCT patients to identify those who developed RSV infections (URI or lower respiratory infection [LRI]). A total of 37 patients (29%) were diagnosed with RSV by clinical respiratory symptoms, microbiology studies (DFA, EIA, culture), and radiology studies. Patients with LRI and/or high-risk URI (unrelated, nongenotypic family grafts) were treated with inhaled Ribavirin and either RSV-IgG or SynagisTM + high-dose IgG. Thirty-three of 37 patients survived the RSV infection, clearing the RSV (RSV studies negative × 2 or negative at autopsy). RSV was not the primary cause of death in any patient and cleared in 13 of 16 patients based on clinical course or by autopsy. Three patients had had other primary pathology (extensive invasive aspergillosis, CMV pneumonia, or MOF) but had viroplastic changes at autopsy and were RSV culture negative. Day 100 and 1-year survivals were 78% and 75% in RSV+ patients and 80% and 55% in RSV- patients (*P* = not significant). Although RSV infection could be successfully eradicated with therapy, deaths in 12 of 16 of these patients were related to subsequent pulmonary complications (hemorrhage in 6 and IPS/GVHD in 6). Among the RSV survivors (median follow-up, 1484 days), 18 of 21 had subsequent pulmonary complications, including immune-mediated lung disease (13 with IPS, chronic pulmonary GVHD, and/or BOOP). These nonfatal pulmonary complications clinically resolved in 10 patients and remain quiescent in 3 patients. Eight of the 21 patients developed chronic lung disease, primarily reactive airway disease/asthma.

RSV respiratory infections are relatively common in pediatric allogeneic HSCT patients. The active infection can usually be eradicated with inhaled ribavirin and serotherapy. However, despite microbiologic clearing of RSV, significant residual lung injury may persist and predispose patients to subsequent, potentially fatal, postinfectious pulmonary complications or chronic lung disease. This suggests that future efforts should not only seek to optimize viral diagnosis and antiviral therapy, but also to control postinfectious inflammatory processes that may lead to further subsequent lung injury.